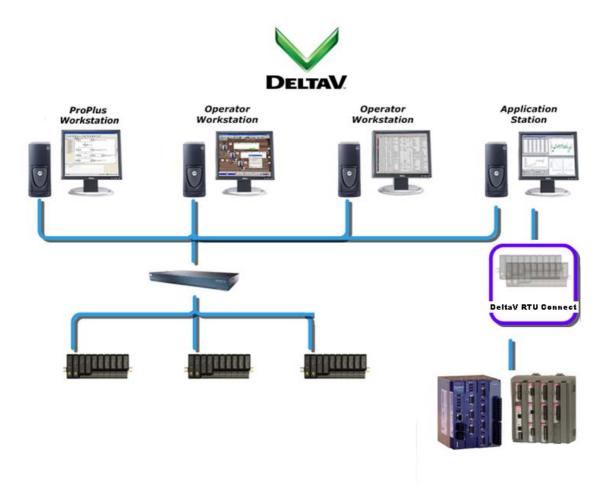
DeltaV RTU Connect - Getting Started



Seamless connection -

from your field assets to your plant automation system



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1 DeltaV RTU Connect – Getting Started

This document introduces you to DeltaV RTU Connect, and describes how to install and configure it. The relevant sections provide details on each process. You also need to consult the user documentation for OpenBSI, ROCLINK 800, ControlWave Designer and OpenEnterprise as you proceed. Firstly, we give a brief description of the DeltaV RTU Connect and outline the main configuration scenarios so that you can decide which of these scenarios best suits your needs.

1.1 Definition of Acronyms

RTU: Remote Terminal Unit with process control capabilities. In this context it specifically refers to ControlWave and remote operation controllers (ROCs) from Remote Automation Solutions.

SCADA: Supervisory Control and Data Acquisition. SCADA systems typically utilize a database and communications software to record, display and write to process control data in remote controllers (RTUs). Network connection can be low bandwidth or even intermittent. In this document, SCADA specifically refers to the OpenEnterprise SCADA system from Remote Automation Solutions.

OE: OpenEnterprise.

DA: Data Access, the OPC standard for accessing real time data.

DCS: Distributed Control System. An integrated process control solution that utilizes distributed hardware and software over an uninterrupted network connection. In this document, DCS refers specifically to DeltaV.

1.2 What is the DeltaV RTU Connect?

DeltaV RTU Connect acts as a portal for SCADA monitored process control data through to a DeltaV network.

DeltaV RTU Connect incorporates the OpenEnterprise SCADA communications components together with the industry standard connectivity capability to propagate data through to the DCS and return control commands to the RTU.

1.3 Setup Options

The basic method of integrating real time data from RTUs is the same for all installations of the RTU Connect. However, since real time data is constantly changing, you need to historically log (historize) these real time values in order to be able to view the changing data as a trend. The way real time data is historized can differ, depending on system requirements. These historization options affect the components that you need to install, so we outline these options here. You can then decide which option best fits your project.

- 1. Real time integration of Signal and Alarm-Event Data from the Virtual Controller: This basic RTU Connect functionality passes real-time signal and alarm-event data to DeltaV. It provides a common data structure for all DeltaV RTU Connect installations. See Section 1.3.1 for details.
- 2. Pass-through historization of signal and alarm-event data from the Virtual Controller: With this option, real time signal data passes directly from the Virtual Controller to the Continuous Historian, and real-time alarm data passes to the Event Chronicle on the Operator Workstation. Alternatively, real time signal data can pass through to a separate PI database. See Section 1.3.2 for details
- 3. Pass-through historization of alarm-event data from the RTU Connect Alarm and Event OPC Server: This option passes alarm-event data the RTU raises to the Plantwide Event Historian (PEH) via the RTU Connect Alarm and Event OPC Server. The PEH is installed on a separate application station. See Section 1.3.3 for details.

4. Historical Backfill from the RTUs to a PI database: The DeltaV RTU Connect backfill service updates the PI Historian with historical data that is collected directly from the RTUs. This option is recommended where low bandwidth or intermittent communications with the RTUs is likely. It requires that you install and enable the necessary DeltaV RTU Connect Backfill components and install the PI Database onto a DeltaV Application Station. See Section 1.3.4 for details.

1.3.1 Real Time Integration of Data and Alarms using the Virtual Controller

This standard default mechanism propagates real time data into the DeltaV system, and it applies to all DeltaV RTU Connect installations.

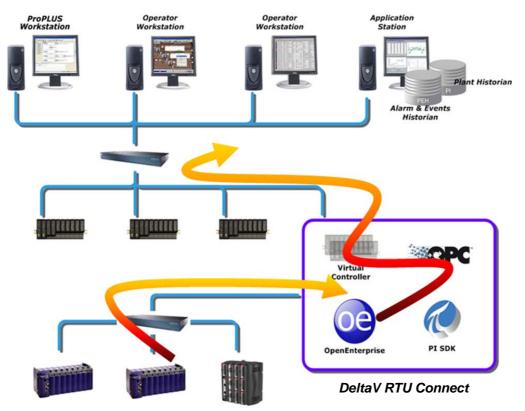


Figure 1 - Real Time Data Collection

Data originating from the RTUs passes to the OpenEnterprise real-time database. Real time signal data is propagated to DeltaV through the DeltaV Virtual Controller. The OpenEnterprise DA OPC server supplies data to the OPC Mirror. The OPC mirror 'pipes' the data through to the DeltaV OPC server. The DeltaV virtual controller then acquires this data and makes it available to the rest of the DeltaV system.

DeltaV components and licenses:

- DeltaV Application Station software suite with the DeltaV OPC DA server, sized for the appropriate number of data values from OE
- OPC Mirror, 2 server license (one server for OE, one server for DeltaV)
- Plantwide Event Historian, 2 server license (one for the alarm & event backfill capability from OE and one for real-time alarms and events from DeltaV)

RAS components and licenses:

- OpenEnterprise software
- DeltaV RTU Connect (the DeltaV FHX and OPC Mirror pipe configuration builder software)
- OpenBSI license (Bristol RTU communications middleware)
- ControlWave designer license (Bristol RTU IEC 6-1131 programming tool)
- ROCLINK 800 license (ROC Configuration software)
- ROC DS800 license (ROC IEC 6-1131 Configuration tool)

1.3.2 Pass-through Historization from the DeltaV Controller

Historical signal and alarm-event data is automatically made available to the DeltaV system from the real time data that is sent from the DeltaV Virtual Controller on the RTU Connect Application Station. Pass through historization can be implemented using the DeltaV Continuous Historian that is installed on DeltaV Operator Workstations or using a PI Historian that is installed on a separate Application Station.

1.3.2.1 Pass-through Historization to the Continuous Historian and Event Chronicle

Real time signal data can be passed-through from the DeltaV Virtual Controller to the native DeltaV historian (the "Continuous Historian") which is based on the Emerson owned "Objectivity" database. This database resides on each Operator Workstation as a separate historical instance and services the historical data required for trending. This can be thought of as the default method of storing historical data for the RTU Connect.

Alarm and Event data can also be passed through from the DeltaV Virtual Controller via simulated Alarm Limit function blocks. Alarms are raised from these function blocks and are collected by the Event Chronicle which again resides on the DeltaV Operator Workstation.

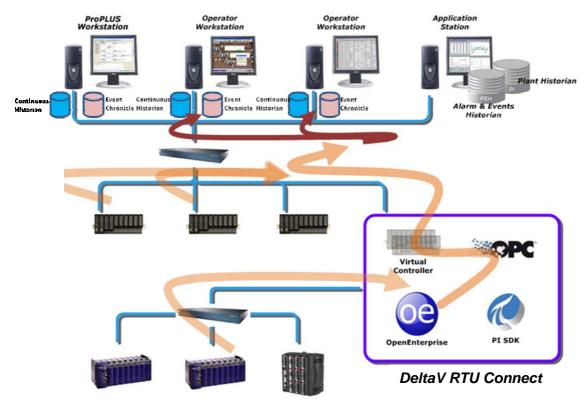


Figure 2 – Pass through Historization using the Continuous Historian

Continuous Historian installation pre-requisites

The DeltaV Continuous Historian is part of the DeltaV installation and requires no further installation or licensing. It is recommended only for systems which have a continuous, robust connection to the RTUs. It does not allow for historical data to be backfilled from the RTUs following connection downtime.

1.3.2.2 Pass-through Data Historization to a PI Historian

Alternatively, the real time signal data can be passed-through to a PI database. This would be installed on a separate Application Station.

Real time signal data within the Virtual controller can be historized using the standard DeltaV system historical streaming into PI from sampled real time data, via the Smart controller function. This scenario is shown in Figure 3.

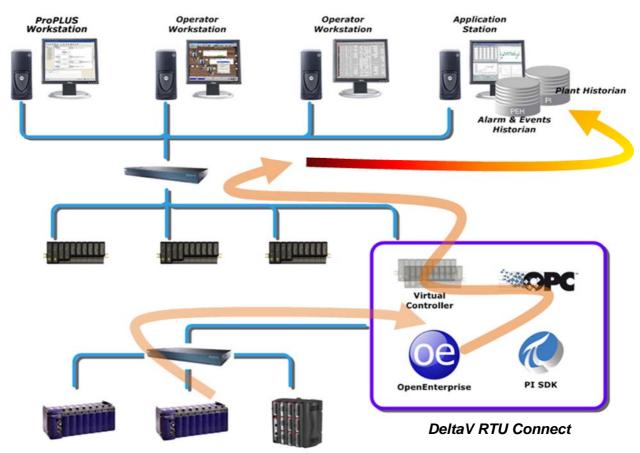


Figure 3 - PI Data Pass-Through

Real time data is stored with the time stamp assigned by the virtual controller at the time of processing. Again, this method of historization does not allow for the backfilling of historical data from RTUs after downtime.

The PI OPC interface is a component of the DeltaV Smart controller that facilitates data propagation to the PI database when a signal is configured with DeltaV to be a historically logged point. An XML file called the En-Hist config file is generated by DeltaV for tags that have been selected for historical logging. The Ent-Hist file specifies scan rates etc and is used by PI to define the historical collection. These functions are inherent in DeltaV/PI components and are not part of DeltaV RTU Connect functionality.

PI Historian Installation pre-requisites

OSIsoft component and licenses:

• Enterprise PI server

1.3.3 Alarm-Event Historization to the PEH using the OPC Server

An alternative way of historizing alarm-event data is to pass the alarm-event data from the RTU Connect Alarm and Event OPC Server to the PEH, which is installed on a separate Application Station.

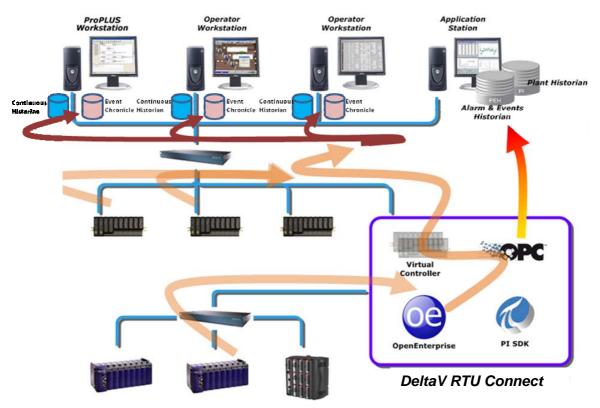


Figure 4: Alarm-Event Historization to PEH

Is Pass-through Historization Enough?

Historization using the Continuous Historian or a PI historian alone is only recommended where there are permanently connected RTUs with robust communications. However, for typical SCADA applications, the telemetry can be intermittent and subject to outages. The pass-through historization approach alone would not be recommended in this case, as there is no mechanism to handle downtime at the device. For example, if a ROC device was configured to store historical data within its archive and attached to the system described above, and there was a communication outage, data could be lost. This is because the pass-through Historization process cannot access and back-fill the stored archive data in the ROC RTU captured during the period of downtime.

1.3.4 Pass-through Historization plus PI Historical Backfill

The pass-through Historization method defined in section 1.3.2.2 historizes the Virtual controller data but does not propagate the RTU time stamp or support the RTU back-fill function. The solution to this problem is to use the RTU Connect PI Historical Backfill Service. One version of this is shown in Figure 5. In this scenario, during normal operation real time data passes from the RTU Connect Virtual Controller directly into the PI Historian. If there is a disconnection with the RTUs, any missed data passes via the RTU backfill service into PI once communications are resumed.

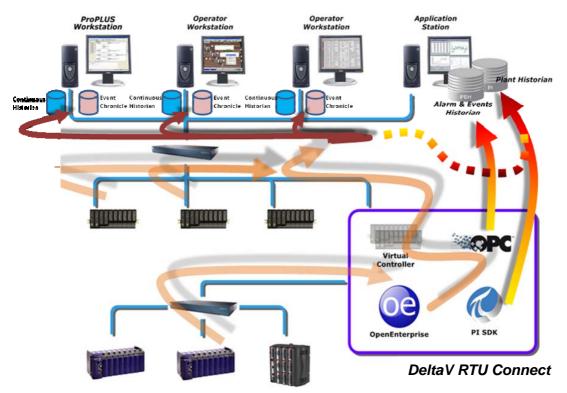


Figure 5 – Pass-through Historization plus PI Historical Backfill Service

1.3.4.1 PI Historical Backfill Explained

If an RTU is disconnected from the system, any subsequent updates will be stored in its historical archive. At some time later when the device is reconnected, the data stored in its historical archive will automatically be sent through to DeltaV RTU Connect. The RTU Connect Backfill service then propagates this data to PI, inserting new records and replacing or ignoring duplicates, depending on how you configure it. DeltaV can then access this historical data in PI using its suite of analysis tools (trending, etc.).

PI Historical Backfill Installation pre-requisites

This is the same as for the Real Time scenario, plus the following components and licenses:-

OSIsoft components and licenses:

- Enterprise PI server, sized for the appropriate number of historical points/tags which will be backfilled by DeltaV RTU Connect
- PI SDK

RAS components and licenses:

• OpenBSI Harvester license (Bristol RTU history upload software)

1.4 Installation Pre-requisites

1.4.1 Hardware

Devices which may be connected to the DeltaV RTU Connect Application Station:

- ControlWave Micro
- ROC800

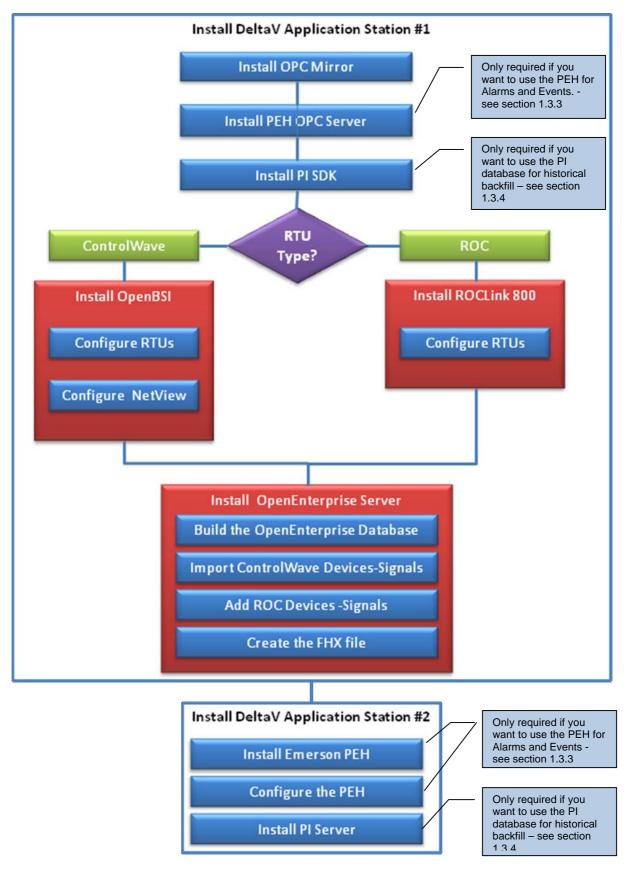
Recommended Operating systems

- Windows 7 (for the DeltaV RTU Connect Application Station)
- Windows Server 2003 (for the Application Station with PEH and PI server)

1.4.2 Software

- OpenEnterprise Server (2.83 onwards) (on DeltaV RTU Connect installation disk)
- OPC Mirror (on DeltaV installation disk)
- ROCLink (on ROCLink installation disk)
- PEH OPC Server (on PEH installation disk)
- OpenBSI (on OpenBSI installation disk)
- PI SDK Version 1.3 (on installation disk available from OsiSoft)
- PI Server Version 3.3.1.3 (on installation disk available from OsiSoft)
- Emerson PEH 3.1 (on PEH installation disk)

1.5 Installation Task Flow



1.5.1 Install Two DeltaV Application Stations

The diagram below provides an overview of DeltaV RTU Connect integration.

· · · · · · · · · · · · · · · · · · ·		
DeltaY RTU Connect	Application Server	
PI SDK	РЕН	DeltaV Licensing
AppStation 1	AppStation 2	DeltaV ProPlus

Create two DeltaV Application Stations. One hosts the RTU Connect software and the other runs the Plant Wide Event and PI Historians.

Appstation1 (DeltaV RTU Connect)

Install the following components in the following order:

- **DeltaV Appstation -** Consult the DeltaV documentation for help.
- **OPC Mirror** See the DeltaV documentation for help.
- **OpenBSI v5.8** (required when using ControlWave RTUs).
- ROCLINK 800 (required when using ROC RTUs).
- OpenEnterprise Server
- **PEH OPC Server** Consult the DeltaV documentation for help.
- **PI SDK** (used for historical streaming) Version 1.3 (Not supporting 1.2 or less) Consult the OsiSoft documentation for help.

Appstation2- (Plant Wide Event Historian & Pl historian)

Install the following components in the following order:

- **DeltaV Appstation -** Consult the DeltaV documentation for help.
- **Emerson PEH -** Consult the DeltaV documentation for help.
- **PI Server** Consult the OsiSoft documentation for help.

1.5.2 Installing ROCLINK 800 and OpenBSI

Before you can begin installing OpenEnterprise Server on your DeltaV RTU Connect Application Station, you need to install and configure the control strategy software. The process data is then available to OpenEnterprise.

1.5.2.1 Installing ROCLINK 800

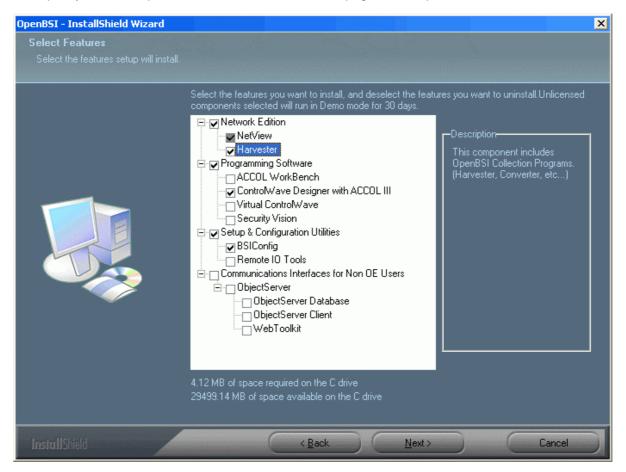
For information on installing and configuring ROC RTUs, refer to the *ROCLINK™* 800 Configuration Software User Manual (for ROC800-Series)" form number A6218, part number D301159X012. This manual is available from the Emerson documentation web site (http://www.documentation.emersonprocess.com/groups/public/documents/instruction manuals/)

1.5.2.2 Installing OpenBSI

When installing OpenBSI, select the following options:

- NetView (Network Edition)
- Harvester
- ControlWaveDesigner with ACCOL III
- BSIConfig

You specify these components on the "Select Features" page of the OpenBSI installation wizard.



1.5.3 Configuring the RTU Control Strategy

Configuring the RTU Control Strategy is beyond the scope of this guide, but you can get help on this subject from the documents listed below. Note that you must have done the following before you can continue configuring DeltaV RTU Connect:-

- **ControlWave RTUs:** Your Control Strategy files must have been coded and saved using ControlWave Designer. Ensure you have saved to both MWT and ZWT format.
- **ROC RTUs:** Your ROC RTUs must be configured using ROCLink[™] 800.

1.5.3.1 Configuring ControlWave RTUs

For information on how to configure ControlWave RTUs using ControlWave Designer, refer to the following documents:

- *Getting Started with ControlWave Designer*, (document number D5085, part number D301416x012)
- ControlWave Designer Programmer's Handbook (document number D5125, part number D301426x012)

1.5.3.2 Configuring ROC RTUs

For information on installing and configuring ROC RTUs refer to the following document:

• ROCLINK[™] 800 Configuration Software User Manual (for ROC800-Series) form number A6217, part number D301249X012 from the Emerson documentation web site

1.5.4 Configuring NetView

This section provides the most basic instructions for configuring NetView within OpenBSI. For more information on every aspect of configuration, consult the OpenBSI Utilites Manual, (document number D5081, part number D301414x012), available from the Emerson documentation web site.

To open NetView:

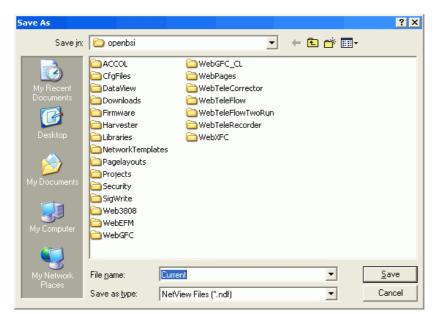
1. Select Start > Programs > OpenBSI Tools > NetView

	WinZip	Ē	OpenBSI Tools		ACCOL Tools	•
	Witzip	Br	Adobe Bridge CS4		Calibration & Configuration	•
5	New Office Document		Adobe Device Central CS4		Common Tools	•
- <u> </u>		Dw	Adobe Dreamweaver CS4		ControlWave Tools	•
	Open Office Document	٩	Adobe ExtendScript Toolkit CS4		Debugging Tools	•
		લ્ડે	Adobe Extension Manager CS4		Web Page Access	- +
1	Programs •	•	LogMeIn	-	LocalView	
	Documents •	5	Microsoft Virtual PC	5	NetView	
		(iii)	Programming IDEs		. TechView	
1	Settings 🕨		Documentation	1	View OpenBSI Manuals on CD	
	Search 🕨		SCADA	· 💼	Collection Programs	•
	Search	(internet)	Bristol Babcock Licensing	· 💼	Database Conversion Programs	•
?	Help and Support	(iii)	Microsoft Office	·		
-			Microsoft Excel			
	Run	W	Microsoft Word			
		_				

2. Select File > New.

NetView	
<u>F</u> ile ⊻iew <u>H</u>	elp
New	Ctrl+N
<u>O</u> pen	Ctrl+O
Print Setup.	
Recent File	
E <u>×</u> it	

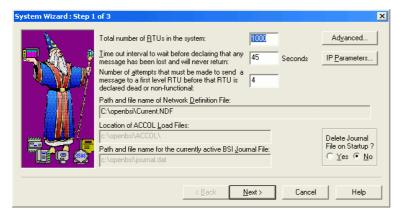
3. Save As Current.NDF



4. Page 1 of the System wizard opens. will see the following three wizard pages.

a) Page 1

Accept the default settings on this page.



Click Next .

b) Page 2

Accept the default settings on this page also.

System Wizard : Step	2 of 3		×
	Set the minimum security levels an operator would need to use certain Open BSI functions which access the ACCOL load: Set the rates at which different Open BSI utilities update data displayed on the screen: Set the parameters that govern how the Harvester performs its collection:	Security Refresh Rates Collection	
	<back next=""></back>	Cancel Help	

Click Next.to display page 3 of the System wizard.

c) Page 3

On this page you need to type the name of your Host PC (the NHP) and its primary IP address in the appropriate fields.

System Wizard : Step	3 of 3		×
	Define your Network Host PC NHP Name: IP Primary Address: IP Secondary Address:	(NHP). OEHOST 192 168 0 0	
		< Back Finish Cancel Help	

Click Finish.

5. To add a network node, right-click the top node and select Add > Network.

C:\Acco	l\fddf.NDF		
🛄 OEHOSI			
	Add	•	Network
	Delete		RTU
	Properties	٦	Line
	NHP	•	

The first page of the Network Wizard opens:-

Network Wizard : Ste	p 1 of 2	
	Enter a name for the Network: [CWNET] Choose the Network Type: BSAP Network IP Network IP Network Define how long to wait for a response to a message sent to an RTU in this network. Message Time-out Period: 45 Seconds Back Next > Cancel Help	—— Type in a name for the network. —— Select IP Network

Click Next.

On page 2 of the Network Wizard, the Destination IP address for Alarm and RBE reports will be entered automatically.

Network Wizard : Ste	p 2 of 2	×
	IP NETWORK Destination 1 For Destination 1 enter the IP address which will receive Alarm reports from the RTUs in this network: 192 192 168 1 13 For Destination 1 enter the IP address which will receive RBE reports from the RTUs in this network: 192 193 168 1 13	
<1	Back Finish Cancel Help	

Click Finish.

6. Now you can add an RTU. In the main NetView window, right click on the new network node and select Add > RTU.

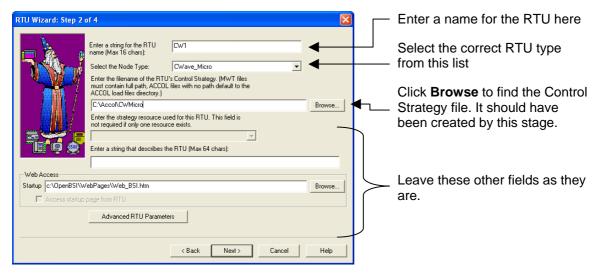
🕸 C:\Accol\fdd	f.NDF	
_	Add	Network
	Delete	RTU
	Properties	Line
	Send NRT / TimeSynch	

7. Accept the defaults on page 1 of the RTU Wizard.

RTU Wizard: Step 1 of	4
	The RTU wizard can add multiple RTUs at the requested network level. The selected number scheme is added at the end of RTU character fields entered in the wizard. Enter the number of RTUs to add: Enter the starting number: 1 Select numbering scheme: 1,2,3, C 01,02,03, C 001,002,003, For example RTU names with a base of 'DC' entered, result in RTUs named DC1, DC2, DC3, DC4, etc. For addressing fields the address is incremented by 1 from the starting address entered.
	< Back Next > Cancel Help

Click Next.

8. Configure the RTU Name, RTU type and name of the Control Strategy file on page 2 of the wizard.



Click Next.

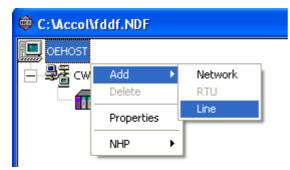
9. Enter the RTU's Primary IP address on page 3.

RTU Wizard: Step 3 of 4 🛛 🔀
IPRTU What is the Primary IP Address: IVEX IVEX <t< td=""></t<>
< Back Next > Cancel Help

10. Accept the defaults on page 4 and click **Finish**.

RTU Wizard: Step 4 of 4	
	Select the Communication Fail-Over Method. Always try to establish Primary link. Stay with link that is working. (Symmetric) Do you want this RTU to be accessed directly from Remote PCs ? Yes No Do you want to disable the sending of the time synch. message to this RTU ? Yes No
	< Back Finish Cancel Help

11. Now you need to add a line. Right-click on the top node and select **Add > Line**.



12. Enter a name for the line on page 1 of the Comm Line wizard.

Comm. Line Wizard : Step 1				
Enter a name for this Communication Line. For BSAP Lines use COM1, COM2, etc. NET001				
Select the type of Line:				
C BSAP Line				
• IP Line				
C EBSAP Line				
C Local BSAP Line				
(For BSAP/EBSAP lines, BSAP network(s) must be created first)				
< Back Next > Cancel Help				

13. Enter the first three mask values for the IP Line and click **Finish**.

Comm. Line Wizard : Step 2	
IP Line The following fields define the IP addresses for the Line. The mask isolates the part of the IP address that must match the value field. Use a 255 in the mask to select a field. Then enter the required field values. Mask: 255 255 0 Image: Comparison of the IP address that must match the value field. Use a 255 in the mask to select a field. Then enter the required field values. Mask: 255 255 0 Image: Comparison of the IP address that must match the value field values. Mask: 255 168 1 0 Image: Comparison of the IP address that must match the value field values. Kask: 255 189 1 0 Image: Comparison of the IP address that must match the value field values. Kask: 255 189 1 0 Image: Comparison of the IP address that must match the value field values. Kask: 255 180 1 0 Image: Comparison of the IP address that must match the value field values. Kask: 255.255.255.0 Value = 4.5.6.0 Image: Comparison of the IP address that must must must must must must must mus	Type a subnet mask here of 255.255.255.0. The 255 mask numbers force the line to connect to the 192.168.1 subnet IP address in the example here. The 0 (zero) value at the end of the mask forces the line to be open to all RTUs having IP addresses that occur within the specified subnet.

14. When you have finished, the RTU should show a status of 0x0000, which means it is connected.-

🐵 C:\openbsi\Current.NDF	
GBWOR-BOEDI3DVM	RTU: CW1 Load File: CWMicro Descriptor:
	Packet Information Status: 0x0000 Pkts Recv: 9 SubPkts Sent: 11 SubPkts Recv: 9 SubPkts Sent: 10 Inv Pkts: 0 Inv SubPkts: 0 Error Information 0 Ack Discard: 0 Ack Timeout: 0 Discard Purge: 0 Discard Quota: 0 Line In Use: P Discard Seq: 0 Out of Order: 0 Fail Over Fails: 0 Restart Seq: 1 Send Error: 0 Secondary

15. To ensure that the RTU can send Alarm and RBE to your DeltaV RTU Connect server, you may need to write the server's address to the RTU's configuration parameters. Right click on the CW1 device and select RTU > RTU Configuration Parameters.

E OEHOST			
CWNET			
CW1			
	Add	•	1
	Delete		
	Properties		
	RTU	×	Change Local Address / Group Number
			Download
			Signal Extractor
			DataView
			Communication Statistics
			WebPage Access
			RTU Configuration Parameters
			ControlWave Designer
			ControlView
			Clear History
		_	

The system retrieves the RTU configuration parameters...

triev	ing Parameters from CW1	Retries	Status	
7 8 9 10 11 12 13 14	Serial Port 4 Serial Port 5 Serial Port 6 Serial Port 7 Serial Port 7 Serial Port 9 Serial Port 10 Serial Port 11		Success Success Success Success Success Success Success Success Success	
13 Ethenet Port 1 Reading I Close dialog after a successful transfer				

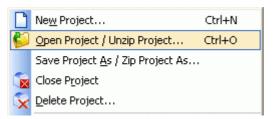
16. Modify the NHP IP ADDR A to be the IP address for your DeltaV RTU Connect server,

Flash Configuration - CW1	
Soft Switches Ports IP Parameters Application Parameters Archive Audit IP Routes S.	
	Apply New Node
IP ADDR A : 192 · 168 · 1 · 13 IP ADDR B : 0 · 0 · 0 · 0	Sign On
UDP Ports Gateway IBP: 1234 Time Synch: 1235 Default G/W: 129 76 118 1	Read From RTU
SNMP	Write To RTU 🔺
BIP Protocol	Read From FCP
Inclusion Addr: 0 · 0 · 0 · 0 Exclusion Addr: 0 · 0 · 0 · 0	Write To FCP
Inclusion Mask: 0 · 0 · 0 · 0 Exclusion Mask: 0 · 0 · 0 · 0	Read From NDF
Dynamic IP Routing Ping Deter Timory the Patrice Default Username:	Write To NDF
Rate: Timeout: Retries: Default Username: 30000 ms 1	
	Close
Status: Data Loaded from RTU	Help

Then click Write to RTU to download this setting to the RTU.

After the new setting downloads, you may see a message dialog indicating that the RTU is being stopped and restarted. Click Yes to accept and close this dialog.

- 17. Select Start > Programs > OpenBSI Tools > ControlWave Tools > ControlWave Designer to open ControlWave Designer.
- **18.** Select **File > Open Project/Unzip Project** to ppen the Control Strategy file you want to download to the RTU. ...



Then select the MWT file...

Open/Unzip p	roject						1205335	? ×
Look in: ն	ACCOL			- 6) 🧊	Þ	•	
CWMicro								
CWMicro.m								
5								_
File <u>n</u> ame:	CWMicro.mv	vt					<u>O</u> per	
Files of <u>type</u> :	Project Files	(*.mwt;*.zwt;*	.mwe;*.zwi	e)	-		Canc	el

Click Open.

19. Select **Build > Make** and allow ControlWave Designer to build the project. You may see various warning or error messages. You can ignore warnings, but you must correct any errors before the build can continue,

Build	O <u>n</u> line E <u>x</u> tras <u>?</u>				
	<u>M</u> ake	F9			
	<u>P</u> atch POU	Alt+F9			
	Compile <u>W</u> orksheet	Shift+F9			
	<u>R</u> ebuild Project	Ctrl+F9			
	<u>S</u> top Compile				
	Go to Next Error	Ctrl+F12			
	Go to Pre <u>v</u> ious Error	Shift+F12			
	Build ⊆ross References	F12			
	Remove unused variables and FB instances				
	<u>T</u> ransfer Download Files				

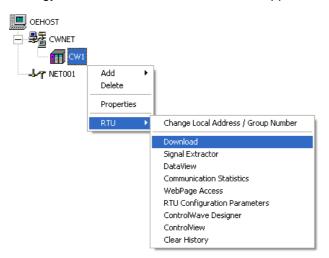
20. Select **Build > Transfer Download Files**. The Transfer Project Download Files dialog displays. and follow the prompts to transfer the download files.

Build	Online Extras ?	
	<u>M</u> ake	F9
	Patch POU	Alt+F9
	Compile <u>W</u> orksheet	Shift+F9
	<u>R</u> ebuild Project	Ctrl+F9
	<u>S</u> top Compile	
	Go to Next Error	Ctrl+F12
	Go to Pre <u>v</u> ious Error	Shift+F12
	Build <u>C</u> ross References	F12
	Remove <u>u</u> nused variables and	FB instances
	Transfer Download Files	

21. Select the Zip Project and Transfer Zip File option. Cick Transfer.

🧩 Transfer Project Download Files	
ControlWave Project (Source) Settings All Resources will be transferred I Zip Project and Transfer Zip File	Transfer Exit
Destination Settings Download Dir c:\OpenBSI\Downloads\	
Project Libraries Compress user libraries into download project.	

22. You can now download the control strategy from NetView. Close ControlWave Designer and reopen Netview. Right-click on the RTU node and select **Download** to download the control strategy file from the DeltaV RTU Connect Application Station to the RTU.



23. Type the user name and password into the relevant fields.

🍄 ControlWave Downloader 📃 🗖 🛿								
File View Help								
Node: Username: Password:	CW1 SYSTEM		Begin Cancel					
Project Path:	c:\OpenBSI\Dow	nloads\CWMicro	Browse Bootfile					
User Files Path:	c:\OpenBSI\Dow	nloads\CWMicro\Control	Browse Path					
☑ Warm Boot ☐ ZipFile ☐ Download User Files								
For Help, press F1								

Then click **Begin** to start the download.

1.5.5 Configuring Harvester

If you are using ControlWave RTUs and want to backfill historical data to the PI Server, you must also configure the Harvester utility. For information on doing this, please refer to the *OpenBSI Harvester Manual* (document number D5120, part number D301421X012) available from the <u>Emerson</u> <u>documentation web site</u>.

The Harvester uses a utility called "Converter". Instructions on how to use the "Converter" application are also found in the "OpenBSI Harvester Manual". Later, when OpenEnterprise Server has been installed on the DeltaV Application Station, the OpenBSI Converter application will need to be pointed to the OEBACKFILL DLL file. For instructions on doing this, refer to the the following document: *NW3000 Archiving Overview* (document number D5092, part number D301506x412) available from the Emerson documentation web site.

1.5.6 Installing OpenEnterprise Server

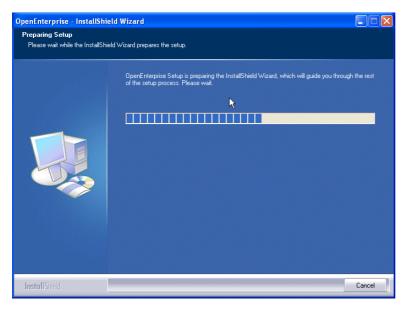
This section details the installation process for installing the DeltaV RTU Connect. Before doing this, you should have already done the following:

- Installed the RTU configuration software:-
 - OpenBSI if you are using ControlWave RTUs
 - o ROCLINK 800 if you are using ROC RTUs
- Created the control strategies for each RTU (and downloaded to the RTU if using ControlWave RTUs)
- Configured NetView and Harvester if using ControlWave RTUs

Place the OpenEnterpriseV2.83 installation disc into the host machine's DVD\CD drive. If the installation does not run automatically, open the disc in Windows Explorer and double click on the OpenEnterprise.exe file.

1.5.6.1 Preparing Setup Dialog

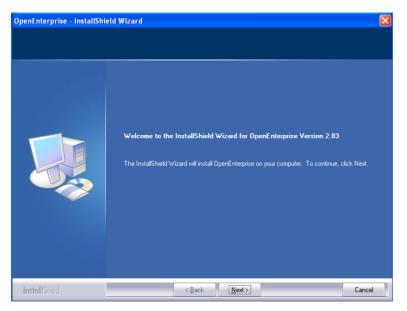
The first dialog in the Wizard shows the InstallShield wizard preparing the host machine for the installation. A blue bar informs you of progress. It is possible that this dialog opens at first behind the Main Installation dialog. To bring it to the forefront, click on it.



When preparation has finished, the Welcome Dialog opens automatically.

1.5.6.2 Welcome Dialog

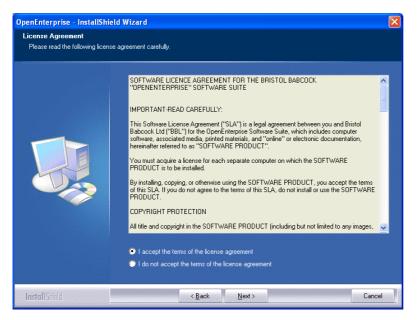
This dialog displays a 'Welcome' message.



Click Next. The License Agreement dialog displays.

1.5.6.3 License Agreement

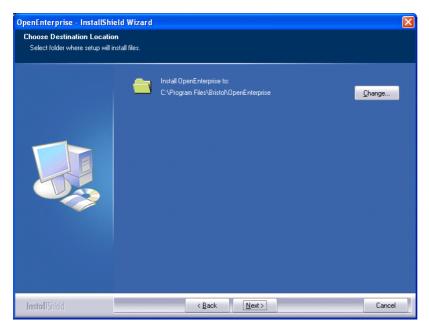
Next is the License Agreement dialog. Read through the terms of the License Agreement. You must select the "I accept the terms of the license agreement" button in order to enable the **Next** button.



Click Next when you are ready to continue. The Destination Location dialog displays.

1.5.6.4 Destination Location

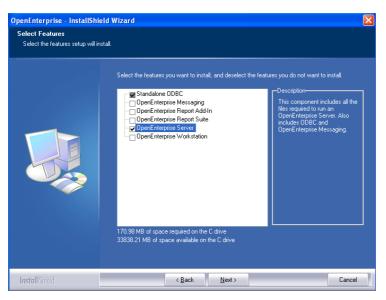
This dialog displays the installation directory. The default installation directory is 'C:\Program Files\Bristol\OpenEnterprise\' Click **Change** to select a different install location, if required.



Click Next. The Select Components page displays.

1.5.6.5 Select Features

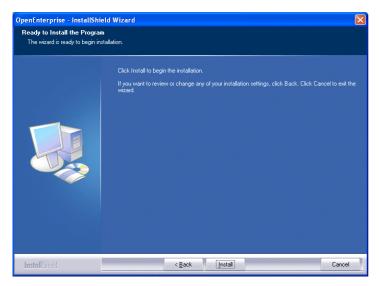
On the Select Features page, select the OpenEnterprise Server option:



Click Next. The Ready to Install the Program page displays.

1.5.6.6 Ready to Install

The Ready to Install the Program' dialog gives you the opportunity to revise the installation details by clicking **Back**.



Click Install to begin the installation and display the Setup Status screen.

1.5.6.7 Setup Status

The Setup Status screen shows the progress of the installation. Leave it running until the final 'Install Wizard Complete' dialog displays.

OpenEnterprise - InstallShi	eld Wizard	
Setup Status		
	OpenEnterprise Setup is performing the requested operations.	
	Installing C.\\1F3C1909-2B14-4608-B87C-ED78B06F1801]\data1.cab	
InstallShield	Cancel	

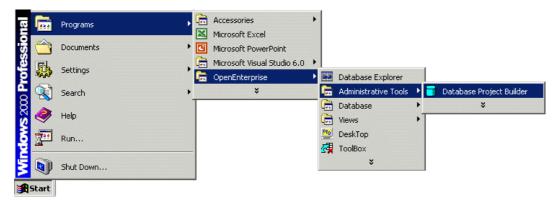
1.5.7 Building the OpenEnterprise Database

After you install OpenEnterprise Server, you must build the OpenEnterprise database using the Database Project Builder. This creates all the tables required to run OpenEnterprise. If you are using ControlWave RTUs the Database Project Builder can automatically insert the signals from your control strategy files into the database.

1.5.7.1 Starting the Database Project Builder

Click the Windows Start button and select the following shortcut:-

Start>Programs>OpenEnterprise>Administrative Tools>Database Project Builder



1.5.7.2 The Database Project Builder Wizard

The Database Project Builder (DPB) Wizard completes 12 steps which result in the building of an OpenEnterprise project specific database. You will be able at every stage before the actual build is initiated to go back to any of the pages and make changes.

The Database Project Builder Wizard makes it easy for you to decide on the major configuration factors involved in building an OpenEnterprise project database, such as security structure and privileges, time zone, device drivers, and the location of the database files.

1.5.7.2.1 Welcome

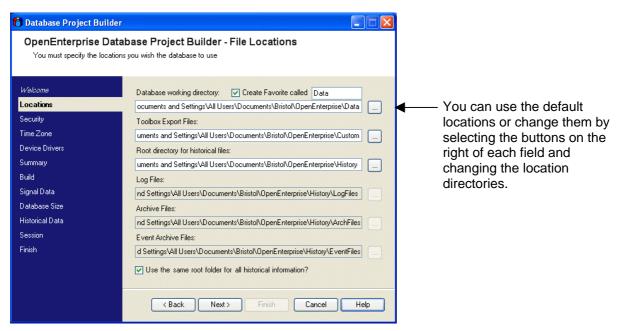
The Welcome Page is the first page of the Database Project Builder wizard.



Click Next to begin.

1.5.7.2.2 Location

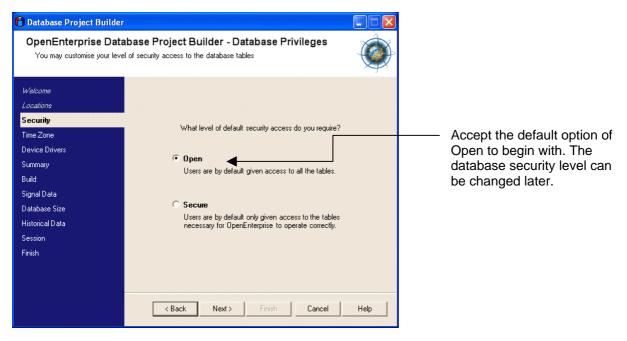
This page enables you to choose the directories where the database and its related files will be placed. OpenEnterprise suggests default directories, which are shown in the example below.



When you are ready, click **Next**. If you specified directories which are not yet created, Project Builder asks you to confirm that you want it to create those directories before moving on.

1.5.7.2.3 Database Privileges

Use the Database Privileges page to select the default table access level for the OpenEnterprise application.



Click **Next** to proceed.

Security and OpenEnterprise Documentation

For more information on OpenEnterprise security, see the OpenEnterprise Security Configuration and Security Group Privileges help files, which you can find by selecting Start > Programs > OpenEnterprise > Documentation once you have installed OpenEnterprise.

1.5.7.2.4 Security Groups

This page enables you to choose whether to automatically set up groups of users or to set up the database with no groups of users.

🎁 Database Project Builder		
OpenEnterprise Datab You may include a standard set	ase Project Builder - Security Groups of security groups	
Welcome Locations Security Time Zone Device Drivers Summary Build Signal Data Database Size Historical Data Session Finish	 Include the standard Security Groups: Administratom Unrestricted access to all OpenEnterprise functionality. Engineers Controlling security privileges of other users. Operators Can change set points, acknowledge alarms and perform basic Workstation configuration but no server configuration. Dispatchers Read-only access to all operational and process data and ability to acknowledge alarms. No configuration privileges or set point changes. Bead-only access. No configuration, set point changes or alarm acknowledge do to the system. (Back Next) Finish Cancel Help 	Leave the default "Include the Standard Security Groups" box selected.

Click **Next**. Prior to the display of the next page, a message appears informing you that the default Administrator user (SYSTEM) has been created, along with the SYSTEM user's password. Click **OK** to accept and clear this message.

1.5.7.2.5 Users

The Users page enables you to define users who can log on to the new OpenEnterprise system. You do not need to create other users at this time.

🎁 Database Project Builder		
	base Project Builder - Users atabase and assign them to Security Groups	
Welcome Locations Security Time Zone Device Drivers Summary Build Signal Data Database Size Historical Data Session Finish	User Name: Password: Confirm Password: Group: Added Users: SYSTEM	Add Remove
	< Back Next > Finish	Cancel Help

Click Next.

1.5.7.2.6 Time Zone

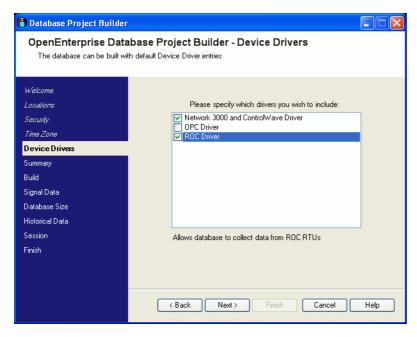
Use this page to choose the correct time zone setting for the OpenEnterprise project.

🖰 Database Project Builder				
	se Project Builder - Time Zones the database in order for date-time values to appear in local time.			
Welcome Locations Security	What Time Zone do you wish the database to be built in? (GMT-05:00) Bogota, Lima, Quito	N		
TimeZone Device Drivers	(GMT-05:00) Eastern Time (US & Canada) (GMT-05:00) Indiana (East) (GMT-04:00) Atlantic Time			
Summary Build	(GMT-04:00) Caracas, La Paz (GMT-04:00) Santiago (GMT-03:00) Newfoundland (GMT-03:00) Brasilia (GMT-03:00) Buenos Aires, Georgetown (GMT-03:00) Greenland (GMT-02:00) Mid Atlantic			
Signal Data Database Size				
Historical Data Session	(GMT-01:00) Azores (GMT-01:00) Cape Verde Is. (GMT) Casablanca, Monrovia (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, Lo N			
Finish	(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, Long	_		
	< Back Next> Finish Cancel	Help		

The system selects the local time zone by default. Click Next to proceed.

1.5.7.2.7 Device Drivers

The Device Drivers page enables you to select the required device drivers. As necessary, select the "Network 3000 and ControlWave Driver" or the "ROC Driver" option. You do **not** need the "OPC Driver" option for DeltaV Connect.



Click Next.

1.5.7.2.8 Summary

The Summary Page summarises all the options you have chosen. Read it before you continue to ensure the options are correct.

🎁 Database Project Builder		
	base Project Builder - Summary the basic configuration you have requested.	
Welcome Locations Security Time Zone Device Drivers Summary Build Signal Data Database Size Historical Data Session Finish	Click Next to build the database. Groups Standard Group configuration: Administrators Dispatchers Dispatchers Guests Users SYSTEM (<no group="">) Privileges Open table access Timezone (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London Device Drivers Network: 2000 and ControlMave Driver Note: The database will be built in a temporary location</no>	
	< Back Next > Finish Cancel	Help

Click Next to proceed.

1.5.7.2.9 Build

The Build page informs you of the progress of the build and display any errors encountered during the build process. During the build process, you may see messages warning you that Windows is blocking an application, and asking if you want to "unblock" it. This is normal; you should accept the unblock request. The build may take several minutes to complete.

🎁 Database Project Builder		
	abase Project Builder - Build our base configuration. Please wait	۲
Welcome Locations Security Time Zone Device Drivers Summary <mark>Build Signal Data Database Size Historical Data Session</mark>	Build Errors Action Ecopy Files to build location Start empty database Include schema Shutdown database Prepare users script Prepare main script Statt database Include Load Shutdown database Shutdown database Shutdown database Statt database Shutdown database Statt database Statt database	Status Done Done Done Done Done Done In Progress
Finish	Overall Progress:	Cancel Build
	< Back Next >	Finish Cancel Help

When the build completes, the program enables the Next button, Click it to proceed,

1.5.7.2.10 Signal Data

The Signal Data page of the Database Project Builder wizard enables you to import ControlWave signal data into the database. At this stage, you should have created and downloaded the control strategy to your ControlWave RTUs. You should have also configured NetView, and it should be running. If you are using ROC or FloBoss RTUs, leave the "Import Signal Data" box unchecked.

🎁 Database Project Builder			
	Abase Project Builder - Signal Data emplate data from Network 3000, ControlWave, ControlWave Micro	۲	<i></i>
Welcome Locations Security Time Zone Device Drivers Summay Build Signal Data Database Size Historical Data Session Finish	Import Signal Data Click this button to import Signal data Import A default set of Time Classes for data collection will be created If you have a low bandwidth network, you may need to tune of collection later by using the NW3000 Setup tool in Toolboo	lata	If you are using ControlWave RTUs, selec the "Import Signal Data" check box Then click Import .
	< Back Next > Finish Cancel	Help	

If you click **Import**, the Database Project Builder first determines if OpenBSI is running. If not, it prompt you to start OpenBSI. You must then select the appropriate NDF file. The DPB then runs the NW3000 Database Builder to import the signals and finally prompts you to create templates. Affirm that you do want the templates. The DPB then runs the NW3000 Template Builder. Click **Next** to proceed to the next page.

1.5.7.2.11 Database Size

Use the Database Size page to extend the size of the database and accommodate estimated future requirements. In the example below we have indicated that the data file should allow importation of up to 1000 analogs and 1000 digitals. The size can be adjusted later also.

🎁 Database Project Builder			
OpenEnterprise Database Project Builder - Database Size			
You need to provide an estimate of the number of Signals the database will contain.			
Welcome			
Locations	The database currently contains:	500 Analogs	
Security		500 Digitals	
Time Zone		0 Strings	
Device Drivers		,	
Summary	What is the maximum number of signals you expect the database to contain?		
Build	(Tip: If you do not know how many signals the database will contain it is recommended that you use the values provided)		
Signal Data			
Database Size			
Historical Data	Estimated number of Analogs:	1000	
Session	Estimated number of Digitals:	1000	
Finish	Estimated number of Strings:	5	
	<back next=""> Fi</back>	inish Cancel Help	

Click Next to proceed..

1.5.7.2.12 Historical Data

🎁 Database Project Builder		
	base Project Builder - Historical Data m so that it will log historical data	
Welcome	You may choose from a series of configuration 'Templates' or configure historical data by pressing 'Advanced'.	manually
Locations	Selected Templates:	
Security		Add
Time Zone		Modify
Device Drivers		
Summary		Remove
Build		
Signal Data		
Database Size		
HistoricalData		
Session		
Finish		
		Advanced
		- Id I di lood
	Keack Next > Finish Cancel	Help

You do not need to configure any OpenEnterprise historical logging, so just click **Next** to proceed to the Session Page.

1.5.7.2.13 Session Page

The OpenEnterprise database cannot acquire RTU data on its own. It requires communications programs to run alongside it on the server. These programs acquire data from the connected RTUs and pass the data into the database. These Realtime Device Interfaces (RDI) communications programs are crucial to an OpenEnterprise system. Additionally, other software programs (such as the "Calculation Server" which provides internally calculated data to any clients requiring it) may run alongside the database. This dependence between the database and its ancillary tasks gives rise to the concept of an OpenEnterprise "Session".

The "Session Manager" manages the database and its ancillary tasks. Use this page and the next page of the wizard to create an OpenEnterprise "session". You only need the ControlWave and ROC RDIs to be running alongside the database as part of the session, but you still need to create a session using these two pages. In the example below we have changed the default session name to "RTUConnect". You may choose to give it another name, or to just accept the default name of "MySession". Note: do not use spaces when entering a name.

🕇 Database Project Builder 📃 🗖 🔀				
OpenEnterprise Database Project Builder - Session You may create a Session for your OpenEnterprise Project to run in				
Welcome Locations Security Time Zone Device Drivers Summay Build Signal Data Database Size Historical Data Session Finish	Do you wish to create a new Standalone Session to run the database? (A Session allows you to run additional applications alongside the database) What would you like to call your Session? Name: RTUConnect Automatic Startup Options: Register as a Windows Service Automatic Startup Add to Startup folder Create a shortcut on the Desktop Create a shortcut on the Desktop Start when Wizard finishes			
	< Back Next > Finish Cancel Help			

Accept the other default selections on this page and click Next.

1.5.7.2.14 Session Tasks

The Session Tasks page enables you to select the tasks that you want to run as part of your OpenEnterprise session. The system selects a default set of tasks based on selections from previous pages in the wizard, but you can edit these selections.

🎁 Database Project Builder	
OpenEnterprise Data The Session will run applicati	base Project Builder - Session Tasks
Welcome Locations Security Time Zone Device Drivers Summary Build Signal Data Database Size Historical Data Session Finish	Please select the additional Applications you wish to run in the Session Available Tasks: Harvester Converter DBB TPB DpenBSI Statistics Import History Export Scheduler Report Scheduler Report Scheduler Robardon ROC Driver
	< Back Next Finish Cancel Help

Remove all tasks from the Selected Tasks list. Then move the Database, RDI3000 and ROC Driver over to the Selected Tasks list as shown in the example below.

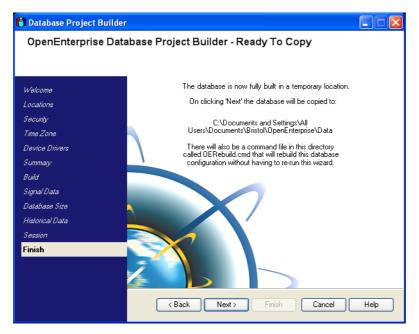
If you are going to use historical backfill with the PI Server, you also need to add the Harvester, Converter and History Export tasks (highlighted below) to the Selected Tasks list.

	Database Project Builder - Se plications alongside the database.	ssion Tasks	
Welcome Locations Security	Please select the additional A Available Tasks:	pplications you wish to run Selected Ta:	
Time Zone	Harvester	>> Database	5K5.
Device Drivers	Converter DBB	RDI3000 ROC Driver	
Summary	TPB OpenBSI Statistics Import		
Build	Report Scheduler	<	
Signal Data	Calculation Server Archive File Manager	~~~	
Database Size	History Export		
Historical Data			
Session		1	
Finish	History da	a export to OSIsoft PI	
	< Back Next >	Finish Cancel	Help

When you have selected the necessary tasks for your session, click Next.

1.5.7.2.15 Ready to Copy

The Ready to Copy page informs you that the database build is complete and ready to be copied into the database folder you have identified.



When you click **Next**, the system copies the database project over to the specified project directory. When the copy completes, the **Finish** button activates. Click it to exit the wizard and immediately start the session.

1.5.8 Adding a ROC Device

Before you can add ROC devices to the OpenEnterprise database, you need to have built the database using the Database Project Builder (see the Building the Database section). ROC Devices and signals are added to the OpenEnterprise database using the ROC Tools utility, found in the OpenEnterprise Toolbox. If you are not using ROC RTUs, you can ignore this section of the document.

1.5.8.1 Starting the ROC Configuration Tool

The ROC Configuration Tool is part of the OpenEnterprise Toolbox. To open the Configuration Tool:

Select Start > All Programs > OpenEnterprise > Toolbox

The system prompt you to log in. Log in as the default SYSTEM user.

Double-click the ROC Tools icon:



The ROC Tools User Interface displays.

ROC Configuration Tool	
File Tools Options Help	
Pevices Data Collection Communication to ROC Devices ROC Point Types	
rtrdb1	Ready

1.5.8.2 Adding a ROC Device connected via IP

Make sure you can connect to the ROC with ROCLINK. Close ROCLINK. Make sure the ROC RDI is running.

1. Select **Tools > New Device > From Connected Device** from the main menu bar of the ROC Configuration Tool.

New Device	From .800 File
	From Connected Device

The Device Configuration wizard opens.

2. On the General Page, enter options required. At a minimum, enter a name for the device and the ROC Address and Group. Note that the name you enter forms part of the signal (tag) name. Because the DeltaV system has a 16 character maximum signal name length, it's advisable to enter a short name (up to five characters) for the device.

E Device Configuration (Ac	dd From	
Device Configuratio This page allows the genera	n - General I properties of a ROC Device to be configured	
General	Name: FB503-1	Address: 1 😋 Group: 2 🗢 🗋 Disable
Communication Routes	Plant Area: ALL	Driver: rochost
Override Driver Defaults Points Selection	Access Area: ALL	Link to Database Device Template
	Display:	
	Description:	Advanced
	For Information Only	Store And Forward Addresses
	Station Name: Remote Optros Cotri	Address Group
	Device Type: FB503	First Device: 0 0
	Device Version: 2.45	Second Device: 0 📚 0 📚
	Version String: W68061 Ver2.45	Third Device: 0 📚 0 📚
	Logical Compatibility Status: 0	Use Intermediate Communication Device
	File Uploaded on: 03/02/2006 11:26:16	· · · · · · · · · · · · · · · · · · ·
	· · · · · · · · · · · · · · · · · · ·	
	< Back	Next > Finish Cancel Help

Click **Next** to proceed.

3. On the Communications Routes page, enter options required, as a minimum enter the IP Address (or network name e.g. as resolved by HOSTS file) and port number.

Device Configuration		
-	n - Communication Routes nication Routes for a RDC Device to be configured	
<i>General</i> Communication Routes Override Driver Defaults	Set up parameters for the four possible Communication Routes.	Retry on Other Healthy Communication Routes Try Request even if all Routes Failed Alternate Primary and Secondary IP
Points Selection		00 🗘 Cost: 1 🗘
	Close Delay (msecs): 20 Port Number: 4000 Close When Not In Use	100 🗘 Cost 2 💭 a Advanced
	Direct Setial Communication Port Name:	Cost 3
	Dial Up Communication Modern Pool	Cost 4
	Phone Number:	Advanced Finish Cancel Help

Click Next to proceed,

4. On the Override Driver Defaults page, enter any options required or accept the defaults. You can accept the defaults, shown in the image below.

Device Configuration		
-	n - Override Driver Defaults meters specified in the Driver to be overridden fi	or this RDC Device
General Communication Routes Qverride Driver Defaults Points Selection	The following values can override the defa values will be used.	Ault values configured for the Driver. If not set up, then the Driver default
	C	< Back Next> Finish Cancel Help

Click **Next** to proceed.

5. On the Points Selection Page, select required options. You can accept the defaults, as shown in the example below.

E Device Configuration (Add From Connected Device)		
Device Configuration This page allows points to be	n - Points Selection selected for import into the Database	
General Communication Routes Override Driver Defaults Points Selection	For adding a device to the Database from a connected device the ROC Points within the device are unknown. Therefore selection of specific points is not possible at this stage. Detailed selection can be done after connection to the device. Add Points options Add No ROC Points to the Database Add All ROC Points for Default Selection of Point Types to the Database Add All ROC Points that are in the Device to the Database Add Default Selection of Signals for any Added Points Mont All History Points that are used	
	K Back Next > Finish Cancel Help	

Click Finish. The system adds the device to the database.

1.5.9 Collecting Data from ROC Devices

Follow the instructions below to configure signal, alarm and event data collection from ROC Devices using the ROC Configuration Tool.

1.5.9.1 To configure collection of analog and digital value data every 10 seconds

- **1.** Expand the device required from the tree view.
 - Requests by Schedule
 Requests by Type
 Totabase ROC Points
 Signals for Point Parameter Values
 Database ROC HistoryPoints
 Diagnostics
- 2. Right-click Requests by Schedule and select New Data Collection (General). The Request Configuration General screen displays. '

B-C Requests by Schedule		
	New Data Collection (General)	
	New Data Collection (Specified TLPs)	
	New Data Collection (Configurable Opcode)	

3. Enter a description (such as Collect Analog and Digital Values) and select **10 Seconds** from the dropdown list for the Schedule field. Click **Next**.

Request Configuration		
Request Configurat This page allows the general	ion - General properties of a ROC Request to be configured	Type description in here
General Request Parameters	Description: Schedule: Auto-Request options On re-establishment of Communications After IP Connect (Close Unused) After IP Connect (not Close Unused) After Dialout After Srbx 	Disable Click here to view available schedules 10 Minutes 30 Minutes 30 Seconds 5 Seconds 1 Hour 2 Minutes 10 Seconds Minute Next Finish Cancel Help

4. Select Pattern: Values from the drop-down menu for the Point Parameters field'.

General	Point Typ	pe Selectio		Points	Point Pattern: V		ionally choose patt	ern)
Request Parameters	Type 91 96 97 99 100 101 102 103 104 105 106 107 108 109 110	Abbrev SYS FST OPC PWR DIN DOU AIN AIN AOU PIN RTD TMC SAI PID Select	Multiple Types Description System Variables FST Parameters FST Pagieter Tags Configurable Opcode Power Control Parameters Discrete Outputs Analog Outputs Analog Outputs Pube Inputs ATD Thermocouple Multi-Variable Sensor System Analog Inputs PID Control Parameters All Clear All	Num Vinta Select All	Param Param 0 1 2 3 4 5 6 7 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Abbrev ROCADR ROCGRP NAME VER VER VER ID DESC SERNUM MAXEVT MAXALM MAXFID MAXMTR MAXFST EVTINDEX ALMINDEX Selec Clear		

5. Select Multiple Types from the Point Type Selection field.

Request Configuration Request Configurati This page allows parameter for	•			•	a Colle	ction)		
This page allows parameter fo General Request Parameters	Point Type Abbrev 91 SYS 96 FST 97 FSTT 99 OPC 100 PWR 101 DIN 102 DOU 103 AIN 104 AOU 105 PIN 106 RTD 107 TMC 108 MVS 109 SAI 110 PID	Single Type Multiple Types Description System Variables FST Parameters FST Register Tags Configurable Opcode Power Control Parameters Discrete Inputs Discrete Outputs Analog Inputs Analog Outputs Puble Inputs RTD Thermocouple Multi-Variable Sensor System Analog Inputs PID Control Parameters		Points Num #1 Select All Clear All	Point I Pattern: \ Param 0 1 2 3 4 5 6 6 7 7 8 9 10 11 11 2 13 14			em)
		_<	Back	Next >	Finisł	n Cano	cel Help	

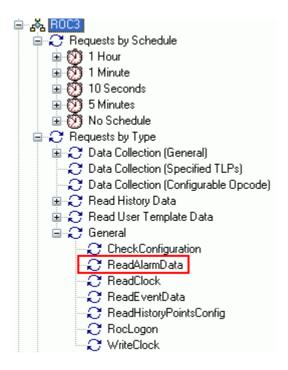
6. Select point types required (AIN and DIN)

General	Point Ty	pe Selectio	on: 🔘 Single Type 💿 Multiple Types		Points	Point Point		ionally choose patt	ern
Request Parameters	Type 91 96 97	Abbrev SYS FST	Description System Variables FST Parameters		Num #1	Param 0 1 2	Abbrev ROCADR ROCGRP	Name ROC Address ROC Group Station Name	
	97 98 99 100	FSTT SFP OPC PWR DIN	FST Register Tags Soft Point Parameters Configurable Opcode <u>Power Control Parameters</u> Discrete Inputs			2 3 4 5	NAME VER VERTIME ID DESC	Station Name Part Number Time Created Manufacturer Product Desc	
	□ 102 ☑ 103 □ 104	DOU AIN AOU	Discrete Outputs Analog Inputs Analog Outputs			2 7 2 8 2 9	SERNUM MAXEVT MAXALM	Serial Number Maximum Eve Maximum Alar	
	105 106 107 108 108	PIN RTD TMC MVS SAI	Pulse Inputs RTD Thermocouple Multi-Variable Sensor System Analog Inputs	~		10 11 12 13	MAXPID MAXMTR MAXFST EVTINDEX ALMINDEX	Maximum PIDs Maximum Met Maximum FSTs Event Index Alarm Index	

7. Click Finish.

1.5.9.2 To configure scheduled collection of alarms

1. Expand the device required from the tree view. Expand the **Requests by Type** and **General** selections. Right-click on **ReadAlarmData**. Select **Properties** from the displayed menu.



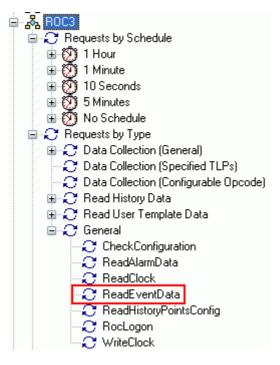
2. Select the desired schedule from the drop-down list.

Request Configuration		
Request Configuration This page allows the general p	on - General properties of a RDC Request to be configured	<u>no</u>
General	Description: ReadAlarmData Schedule: Auto-Request options On re-establishment of Communications After IP Connect (Close Unused) After IP Connect (not Close Unused) After Dialout After Srbx	Disable
		OK Cancel Apply Help

3. Click OK.

1.5.9.3 To configure scheduled collection of events

1. Expand the device required from the tree view. Expand the **Requests by Type** and **General** selections. Right-click **Read Event Data** and select Properties from the displayed menu.



- 2. Select the desired schedule from the drop-down list.
- 3. Click OK.

1.5.10 Creating the FHX File

The following instructions provide the basic steps by step directions. For more details on configuring Tag Formats and Alarm Associations, refer to the DeltaVConnect help file. The same information can also be found in Chapter 11 of the DeltaV RTU Connect Reference Guide, (Document Number D301682X412).

- 1. Open the DeltaV RTU Connect Export Tool
 - a. Select Start > All Programs > OpenEnterprise > Toolbox.
 - b. Double-click the DeltaV RTU Connect Export tool within the Toolbox.
- 2. Configure the DeltaV tag format that you want to use
 - a. Select **Tools > Properties.**
 - b. Select the Tag Format page and configure the tag formats. The defaults are typically sufficient for a ROC or FloBoss device.

🗡 Properties	<u>?</u> X
General Format Alarm Association OPC Mirror Historical Backfill	DeltaV tag format Use the buttons below to configure the tag format of alarm function blocks, signals and alarms when dragged into the DeltaV explorer view. Device Instance Base Extension Attribute Signals/Alarms OEVICE>_ <base/> <ext>_<attr> Alarm Block <oevice>_<base/><ext> Enable function block auto increment Native alarm block Remove illegal characters</ext></oevice></attr></ext>
	OK Cancel

- 3. Configure the Alarm Associations that you have used.
 - a. Select Tools > Properties
 - b. Select the Alarm Association page and configure the alarm associations that you have used. The defaults are typically sufficient for a ROC or FloBoss device.

Properties General Format Alarm Association OPC Mirror Historical Backfill	Alarm association Use the listboxes below to map signal and alarm attributes. Enter the name of the attribute or alarm attribute into the text box and then select the listbox to add to.
	Attribute High High High Low Low low Deadband
	EU HIHIAL HIAL LOAL LOLOAL ALDBND
	Critical 💌 Warning 💌 Warning 🔽 Critical 💌
	Digital Alarms Default digital alarm priority Warning 💌
	OK Cancel

4. Use the Search Criteria Controls on the main UI to create a list of the signals you want to export to DeltaV.

Search criteria				hh
Device name	ROC1	Instance		
Signal name		Base		2
Description		Extension		
	Match case	Attribute	\square	

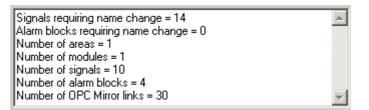
5. Drag and drop the signals to the DeltaV Explorer pane.

Gateway Export Config	uration Tool		_ [0]
File View Tools He	elp		
612.12			
Search criteria		▶	sets
Device name ROC1	Instance	Devi	ce Name=ROC1; Base=PIN;
Signal name	Base	C Devi	ce Name=ROC1;
Description	Extension		×
Match	case Attribute	<u> </u>	
Name	Description	DeltaV Tag Name 🔺	🖕 🛶 🛛 Export
CT BOCI AGA 1 CUBDP	#1 Meter #1 CUBDP		🖃 👶 Control Strategies
- ROC1:AIN.1.EU	#1,RTD,EU	ROC1_AIN1_EU	E-E SCADA_Area1
ROC1:AIN.1.HIAL	#1,RTD,HIAL		E SCADA Module1
ROC1:AIN.1.HIHIAL	#1,RTD,HIHIAL		6 W ROC1 AIN41
ROC1:AIN.1.LOAL	#1,RTD,LOAL	N	Drag/drop ROC1_AIN4_EU
ROC1:AIN.1.LOLOAL	#1,RTD,LOLOAL		BIOCI_AIN4_HIHIAL
· ROC1:AIN.2.EU	#2,AI 1 Slot0,EU		BOC1_AIN4_HIAL
🕮 – ROC1:AIN.3.EU	#3,Fred x,EU		BOC1_AIN4_LOAL
🖶 ROC1:AIN.4.EU	#4,Logic,EU	ROC1_AIN4_EU	ROC1_AIN4_LOLOAL
ROC1:AIN.5.EU	#5,Battery,EU		E-W ROC1_AIN12
ROC1:AIN.6.EU	#6,Charge In,EU	ROC1_AIN6_EU	ROC1_AIN1_EU
ROC1:AIN.7.EU	#7,System mA,EU		BOC1_AIN1_HIHIAL
ROC1:AIN.8.EU	#8,Brd Temp,EU		BOC1_AIN1_HIAL
ROC1:AOU.1.EU	#1,A0 1 Slot0,EU		ROC1_AIN1_LOAL
ROC1:DOU.1.ACCUM	#1,D0 2 Slot0,ACCUM		NOCI_AINI_LOLOAL
ROC1:DOU.1.EU	#1,D0 2 Slot0,EU		
ROC1:DOU.1.STATUS	#1,DO 2 Slot0,STATUS		
ROC1:DOU.1.TIMEON	#1,DO 2 Slot0,TIMEON		
ROC1:PIN.1.EU	#1,PI 1 Slot0,EU		
ROC1:PIN.2.EU	#2,PI 2 Slot0,EU		
ROC1:PIN.3.EU	#3,PI 1 Spare,EU		Signals requiring name change = 14
ROC1:PIN.4.EU	#4,PI 2 Spare,EU		Alarm blocks requiring name change = 0 Number of areas = 1
ROC1:SFP.1.DATA1	#1,Soft Pt 1,DATA1	ROC1_SFP1_DATA	Number of modules = 1
	#1 C-6 DL1 DATAD		Number of signals = 10 Number of alarm blocks = 4
Show new signals only	Hide dragged items	23 Signal(s) found	Number of OPC Mirror links = 30
rtrdb1	, inde dragged kents	20 orginal(s) round	-
TUUDI			-

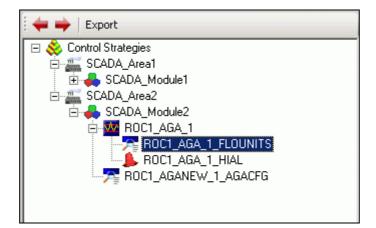
a. If any signal names need changing, the Name Change buttons become enabled:



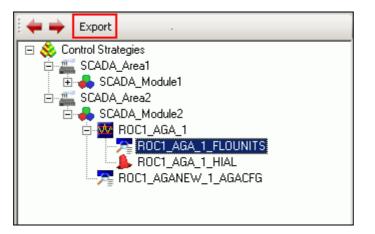
b. The Status Pane informs you that some signals require a name change:



You can change the names one at a time by clicking on the Name Change buttons, or using the left and right cursor keys on the keyboard to scroll up and down the DeltaV explorer pane. Only tags requiring a name change are selected each time you click a button or a cursor key. You can then change the name of the selected signal.



6. When ready, click **Export** at the top of the DeltaV Explorer pane.



The DeltaV RTU Connect configuration tool creates a .FHX file that DeltaV recognizes as a control strategy file.

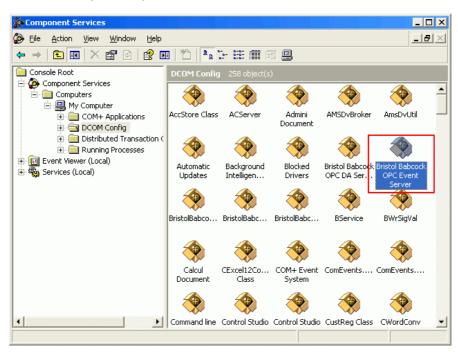
You now need to download the FHX file to your virtual controller:

- 1. Import the FHX file in DeltaV Explorer, assign modules and download
- 2. Stop and start the OPC Mirror

1.5.11 Configuring the Plant Event Historian

Once you have installed the Plant Event Historian (PEH) on Application Station #2, you need to set the system up to use the Alarm and Event (A&E) OPC server on the RTU Connect Application Station (which we call Application Station #1).

- 1. Ensure the Plant Event Historian OPC server has already been installed on the RTU Connect Application Station (Application Station #1).
- 2. Access Application Station #2 and open the PEH Configuration tool.
- Configure the PEH OPC Server Startup File to be the RAS Alarm and Event OPC server that is on the RTU Connect App Station (Application Station #1). The server name displays as "BristolBabcock.BristolOPCEventServer" in the list of available OPC servers on the RTU Connect machine.
- 4. Return to the RTU Connect Application Station (Application Station #1) and configure the A&E OPC server to start under the credentials of the Administrator user:
 - a. Open the Control Panel.
 - b. Select Administrative Tools.
 - c. Select Component Services.
 - d. In the DCOM Config folder, right-click on the BristolBabcock OPC Event Server and select the Properties option from the context menu.



e. Select the **Security** tab.

Bristol Babcock OPC Event Server Properties	<u>? ×</u>
General Location Security Endpoints Identity	
Launch and Activation Permissions	
Use Default	
C Cugtomize	<u>E</u> dit
Access Permissions	
Use Default	
⊂ Custo <u>m</u> ize	E <u>d</u> it
Configuration Permissions	
C Use Defa <u>u</u> lt	
Customize	Edįt
0K Ca	ncel <u>Apply</u>

- f. Select Use Default in the Launch and Activation Permission frame.
- g. Select Use Default in the Access Permissions frame.
- h. Select **Customize** in the Configuration Permissions frame.
- i. Click Edit to display the Change Configuration Permissions dialog.

Change Configuration Permission	n	? ×
Security		
Group or user names: Administrator (GBWOR-00ED Administrators (GBWOR-00ED CREATOR OWNER DeltaVAdmin (GBWOR-00ED DVDC114 desistences (CDV/0	D12DVM\Adminis	strators)
Permissions for Administrator	<u>Add</u> Allow	<u>R</u> emove Deny
Full Control Read Special Permissions		
For special permissions or for adva click Advanced.	anced settings, _	Adyanced
	OK	Cancel

- j. Add Full Control and Read permissions to the Administrator user name.
- k. Click **OK**, The Server Properties dialog displays.
- I. Select the **Identity** tab.

General Location Security Endpoints Identity Which user account do you want to use to run this application? The interactive user. The launching user. This user.				
 The interactive user. The launching user. 				
C The Jaunching user.				
User: 00ED12DVM\Administrator Browse				
Password:				
Confirm password:				
C The system account (services only).				
OK Cancel Apply				

m. Select the "This User" option and add the local Administrator with username and password.

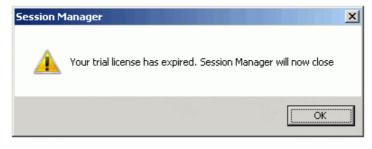
1.6 Licensing Information

Upon initial installation, the OpenEnterprise RTU Connect software package operates for a 30 day evaluation period. Each time you start the software the system displays a reminder message telling you that the software is a demo version, and shows you a count of the number of days remaining in the trial period. During this trial period, you can continue to run the software without registering.

불 RTUConnect - Session M	anager
Session View Options Help	
	Demo - 30 days remaining
23-Mar-2011 10:25:27	Software Watchdog started.
23-Mar-2011 10:25:27	Started Database
23-Mar-2011 10:25:27	Standalone State
23-Mar-2011 10:25:27	Mode Test State
23-Mar-2011 10:25:27	Started Session.
23-Mar-2011 10:25:26	Opened Session

Caution

At the conclusion of the 30-day evaluation period, the OpenEnterprise RTU Connect software package ceases to function. You will see the following message:-



You MUST register the software package in order to use it after 30 days. Do NOT attempt to set back the date on your computer in order to extend the evaluation period; doing so disables the software and terminates the evaluation period.

1.6.1 How do I Register My Software?

1. Ensure that the computer has an active Internet connection.

Note: If this computer does **not** have an active Internet connection, you will need access to a computer which does, and you will need a USB thumb drive (or other method) to transfer the license file between the Internet-connected computer, and the computer on which you have installed the software.

- Start the License Manager software, on the computer containing the newly installed software packages, using the sequence: Start > Programs > Bristol Babcock Licensing> License Manager.
- 3. The License Manager examines your PC, and identifies in a list, which OpenBSI / OpenEnterprise software packages are installed on this computer. Any package that is not registered shows as **Trial** in the **State** field. Click **Create LRF** to generate a License Request File (*.LRF) and save the file on your PC. Leave the License Manager session running.

Note: Make note of where on this computer you save the LRF file, because you will need it later.

🕞 License Manager						
<u>File Yiew H</u> elp						
8						
License Manager i current licenses. Licenses:	License Manager is a tool allowing you to view or update your current licenses.					
Package Name	State	Options			licensed status	
ControlWave Designer	Trial	Demo Days Left: 29				
OpenBSI Network Edition	Trial	Demo Days Left: 29				
OpenBSI Harvester	Trial	Demo Days Left: 32				
OpenEnterprise	Unlicensed					
OpenEnterprise Reporting	Trial	Demo Days Left: 28				
OpenBSI Local Edition	Trial	Demo Days Left: 58			Click Create LRF	
ACCOL WorkBench	Trial	Demo Days Left: 58				
Actions To create License Re 'Create L		create LRF				
To get a License Key Fi (via Intern						
To include a received click 'Includ		le, Include Key				
License Transfer						
To create a blank Lice computer, click 'Cre		s Create Transfer				
To transfer current lice computer, click 'Tra		r Transfer License				
To install transferred computer, click 'Ins		Install Transfer				
Ready			///			

4. Click **Get Key**, and your Internet browser brings you to the Software Registration area of the Emerson Remote Automation Solutions website. Alternatively, in your browser, go to:

http://www2.emersonprocess.com/en-US/brands/remote/systems_and_software/supportnet/Pages/license_registration.aspx

Note: If this computer does **not** have internet access, transfer the *.LRF file you just created to a computer which does have internet access. You might need to copy it to a CD, use a USB thumb drive, or transfer it by other means. Once you load it onto the other internet-capable computer, use the URL in step 4 to proceed with the registration.

Register Your Bristol OpenBSI Software				
Please enter your customer id and password, normally supplied by Remote Automation Solutions when you purchase the software. If you do not have a customer id please contact our Technical Support team.				
Customer Id:				
Password:				
Sign-On				

5. Enter your **Customer Id** and **Password** and click **Sign-On**.

Note: You can find the **Customer Id** and Password on a label affixed to the outside of your OpenBSI / DeltaV RTU Connect CD-ROM package.

6. Now you have two options. You can view which licenses have been purchased and are available for you to register, or you can skip that step and proceed to register your software. To view the available licenses, go to step 7. To register the software, skip to step 8.

Register Your Bristol OpenBSI Software
Please enter your customer id and password, normally supplied by Remote Automation Solutions when you purchase the software. If you do not have a customer id please contact our Technical Support team.
To register (unlock) your software, please select the <u>Register</u> option. You will need a License Request File to register your software.
To view your license purchases, please select the <u>View</u> option.

7. To view which software packages have been purchased for this particular **Customer Id** number, as well as how many of those licenses are already in use, click the <u>View</u> link. The View Software Licenses page opens. You may need to use the scroll bar to locate the product you want to view.

View	Software	Licenses

Product Name	Available	Quantity Ordered	Options
Essentials	4	4	
CW Designer	1	1	
Harvester	4	4	
OpenEnterprise	4	4	

Field	Desciption
Product Name	This displays the name of the software packages for which licenses have been purchased using your Customer Id number. In addition to OpenBSI packages other software products such as OpenEnterprise packages are displayed.
Available	This displays the number of licenses out of the total number purchased which have not been registered for use. If the Available number is 0 , you cannot register a new copy of this particular package.
Quantity Ordered	This displays the total number of licenses purchased using this Customer Id number.
Options	Any options available (such as being able to update the information displayed) will be shown here.

8. To register your software, click the <u>Register</u> link. The Registration Information page opens.

Register Your Bristol OpenBSI Software

Please enter your customer id and password, normally supplied by Remote Automation Solutions when you purchase the software. If you do not have a customer id please contact our Technical Support team.

You need to supply a License Request File to register your software. When registration is complete, a key file will be made available for download. This key file should then be used to unlock the software on your computer. A copy of the Key file will also be automatically e-mailed to the entered E-Mail Address.

After entering your details, please press the Next button.

Your Name:	your name	
E-Mail Address:	your e-mail address	
Verify E-Mail:	your e-mail address	
License Request File:	C:\OpenBSI\myIrfname.Irf	e
	Next	

9. Enter your name in the **Your Name** field, and your e-mail address in *both* the **E-mail Address** and **Verify E-Mail** fields. Then use the **Browse** button to locate the license request file you generated previously in Step 3. Finally, click **Next**. The Unlock Software Licenses page opens.

Note: The website will send you an e-mail with an attached unlock key file to the e-mail address you specify here.

10. Click the **Unlock** checkbox for the product(s) you want to register, then click **Submit License Request** to send the license request to the website.

Unlock Software Licenses

Please select the products to unlock by ticking the appropriate Unlock check box(s).

Product Name	Available	Quantity Ordered	Options Unlock ?
Essentials	4	4	Unlock
CW Designer	1	1	Unlock
Harvester	4	4	Unlock
OpenEnterprise	4	4	Unlock
	Subn	nit License Request	

11. If the license request is successful, the website generates a key file you can use to unlock your software. Click <u>Key file</u> to download a copy of the key file. (The website also e-mails you a copy of the key file at the e-mail address you entered in step 9.)

Note: If the computer which contains the locked software does **not** have internet access, you need to transfer the key file back to that computer to complete the registration process.

Unlock Software Licenses Your unlock request has completed successfully. Please download, save and apply the Key file using the License <u>Key file</u> A copy of the Key file has also been emailed to your e-mail address

- In order to complete the registration process, the key file you received must reside on the PC containing the newly installed software packages. Go back to the License Manager session you started in Step 3. (If you shut the License Manager down, restart it by clicking Start > Programs > Bristol Babcock Licensing> License Manager.
- 13. To apply the key file, click the **Include Key** button and specify the location of the key file.

14. If the registration completes successfully, you will see a message box. Just click **OK** and you're done. Reboot your PC for the new licenses to be activated.

License Manager 🛛 🔀				
į	License successfully updated. Please restart machine to allow new settings to take effect.			
	ОК			

1.6.2 How to Transfer a License from One PC to another PC

Occasionally, it may be necessary for you to transfer an OpenBSI software license from one computer, to another computer. This might be necessary, for example, if you are upgrading to a newer computer, and want to shift your OpenBSI license to the newer computer, and remove it from the older computer.

In this explanation, the computer which is giving up its license will be referred to as the **source computer** and the new computer which will receive the transferred license will be referred to as the **destination computer**.

Note: In order to transfer the license, the license on the source computer must already be registered, and the software must have already been installed on the destination computer.

- 1. Start the License Manager software, on the destination computer, using the sequence: Start > Programs > Bristol Babcock Licensing> License Manager.
- 2. Select the unlicensed package you want to change from a trial / demo package, into a licensed package, and generate an empty transfer request file.

Note: The transfer request file you create must be read-write. It cannot be a read-only file.

3. Answer **Yes** to the prompt.



4. Save the empty transfer (*.XFR) file.

	Save Transfer I	File As			? 🛛
	Save in:	🚞 OpenBSI	~	G 🤌 📂 🛙	
Click Save to create the empty transfer file.	My Recent Documents Desktop My Documents	CfgFiles Harvester Libraries mwt Pagelayouts Projects Web9808 WebEFM WebGFC WebGFC WebGFC_CL WebTeleCorrect	WebTeleFlow WebTeleFlowTwoRun WebTeleRecorder WebXFC Opcsrvr.xfr tor		
	My Computer	File name:	opesrvr.xfr	~	Save
		Save as type:	License Transfer Files (*.XFR)	~	Cancel
	My Network				Help

5. Click **OK** when the file is created.



6. Copy the XFR File you just saved onto the **source** (licensed) computer. You can transfer it via a USB thumb drive, e-mail, etc.

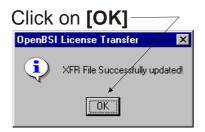
Start the License Manager software, *on the destination computer*, using the sequence: **Start > Programs > Bristol Babcock Licensing> License Manager.**

- 7. Now, you must transfer the license of the software package, into the transfer (*.XFR) file you created in Step 5. In the License Manager, select the license you want to transfer and click **Transfer License**.
- 8. Now locate the XFR file you created earlier and click **Open**.

Open the XFR file you created earlier

Open License	e Transfer File	? ×
Look jn:	🔁 OpenBSI 💽	🖻 📺 🛅
Downloads	s	🗎 NETDEF after openii 🖉
📄 IOTools		🚞 NETDEF starting 🛛 🖊
📄 libraries		🚞 Projects 🛛 🖊
🚞 mwt		🚞 security 🛛 🖊
📄 NETDEF a	after adding additional RTUs and COmm lines	🚞 Web3808 🛛 🖊 📗
📄 NETDEF a	after DBConfig	🚞 WebPages 🖉
•		
File <u>n</u> ame:	wrkbench.xfr	<u>O</u> pen
Files of type:	Transfer License Files (*.XFR)	▼ Cancel
	Dpen as read-only	Help

9. When the License Manager completes the update of the XFR file, click **OK**. You now have successfully removed the license from the source computer, and stored it in a file. Notice now that the State field in the License Manager on the source computer no longer shows "Licensed" for this software package.



- 10. You can now copy the XFR file onto the destination computer. (You can transfer it via a USB thumb drive, e-mail, etc.)
- 11. Once you copy the XFR file to the destination computer, you can install, and complete the transfer. To do this, select the package which needs to be licensed, then click **Install Transfer**.

🖻 License Manager	
File View Help	
8	
License Manager is a tool allowing you to view or update your current licenses. Licenses: Package Name State Options ControlWave Designer Licensed OpenBSI Network Edition Licensed OpenBSI Harvester Licensed OPC Server Trial Demo Days Left: 58 Security Vision Licensed OpenBSI Local Edition Licensed OpenBSI Local Edition Licensed Virtual ControlWave Licensed 5000 I/O Points	
Actions To create License Request File, click Create LRF To get a License Key File, click 'Get Key' Get Key (via Internet) Get Key To include a received License Key File, click 'Include Key' Include Key	Select the package you want to license, then click Install Transfer
License Transfer To create a blank License File for this computer, click 'Create Transfer'	
To transfer current license to another computer, click 'Transfer License'	
To install transferred license on this computer, click 'Install Transfer'	
Ready	

12. The License Manager prompts you to confirm you want to install the transferred license. Click **Yes**.

OpenBSI License Transfer	
?	Do you wish to install the transferred license on this machine?
	Yes No

13. Specify the location of the updated XFR file on the destination computer and click **Open**. This completes the transfer.

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Engineered and supported by:

Emerson Process Management,

Remote Automation Solutions,

Blackpole Road, Worcester, WR3 8YB, UK

Registered office: Meridian East, Leicester, LE19 1UX

Registered in England and Wales, Registration No. 00671801

VAT Reg No. GB 705 353 652

Worldwide Headquarters 1100 Buckingham Street

Watertown, CT 06795 USA

T +1 860.945.2200 F +1 860.945.2213

World Area Offices

Canada: Andean & Caribbean: Brazil: Latin America (Southern Cone): Mexico & Central America: Asia Pacific: Central & Eastern Europe: Middle East & Africa:

T +1 905.362.0880 T +58 261.300.8100 T +55 15.3238.3788 T +54 11.4837.7000 T +52 55.5809.5300 T +65 6777.8211 T +44 1751.471800 T +971 4.811.8100

